Future Series

Waterfinder

User's manual

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Contents

1 Preface **5**

2 Important Notes **6**
2.1 General Notes 6
2.2 Possible Health Hazards 6
2.3 Surrounding Area 6
2.4 Voltage 6

3 Technical Specifications **7**
3.1 Control Unit 7

4 Scope of Delivery **8**

5 Assembly **10**

6 Control Elements **11**
6.1 Front View 11
6.2 Back View 12
6.3 Touchpad for Menu Navigation 13

7 Detection of Water Deposits **14**

8 Loading the Device **16**

9 Danger of Explosion during Excavation **17**

10 Maintenance and Services **18**

List of Figures

1 Scope of Delivery 9
2 Connection of Electrodes 10
3 Connection of External Power Supply (optional) 10
4 Front View 11
5 Back View 12
6 Touchpad for Menu Navigation 13
7 Connection of Electrodes 14
8 Rarefy a Measurement 15
9 Connection of Charger 16

List of Tables

1 Technial Specifications (Control Unit) 7
2 Scope of Delivery 8

1 Preface

Dear customer,

in the first instance we want to thank you that you made your decision on a product of OKM Ortungstechnik GmbH.

The present product is based on a geo-electric measuring method which can be used to locate water deposits in the target area.

With our team of specialists we guarantee that our products are under recurrent control. Our specialists try to implement new developments in terms of further quality improvements for you.

Of course by selling our products we cannot guarantee that you really make a find during your research. The recognition of hidden objects and structures depends on a hugh number of factors - like you know. Determining factors are the dielectricity constant of the ground, the grade of mineralisation and the dimensions of an object relating to its depth. Specially in very wet soil, clay and sand with high conductivity of the ground, recording of the measured results can be falsified strongly.

With this product you purchased a device which stood the tests in regular operation like all other products of us. If you are interested in where our devices have gone into action please visit our homepage.

For our company it is necessary that we protect our developments within the framework of existing legislation to a patent or trademark registration. Therewith we offer you a higher warranty while using our products.

Please take your time consecutively, read this user‘s manual and familiarize yourself with the utilisation and operation of this Waterfinder.

2 Important Notes

Please read these operating instructions carefully and closely before using *Waterfinder* and its accessories! These instructions give information on how to use the device and point out potential sources of danger.

2.1 General Notes

Being an electronic device, *Waterfinder* has to be treated with the caution and care necessary when such devices are used. Any failure to observe the safety precautions given or any use for purposes other than the ones it is conceived for may result in a damage or destruction of the processing unit and connected components.

The device will get destroyed if it is opened improperly.

2.2 Possible Health Hazards

If used properly the device normally does not pose any health hazards. According to current scientific knowledge, the high-frequency signals are not harmful to the human body on account of their low power.

2.3 Surrounding Area

Having been transferred from a cold to a warmer place, the device should not be operated immediately afterwards. Any condensation, which may have formed, might cause the device to get destroyed. Avoid strong magnetic fields, which may occur in places such as near machines or loudspeakers, and avoid using a detector within a radius of 50 meters.

2.4 Voltage

The power supply should not be outside the indicated range of values. Only use batteries and rechargable batteries which are included in the scope of delivery.

Never use the 230 Volt mains supply.

3 Technical Specifications

The following technical indications are medial values. During operation small variations are quite possible.

3.1 Control Unit

Dimensions (H x W x D)	430mm x 150mm x 260mm
Weight	about 3kg
Voltage	12 VDC
Processor	Motorola, 4 MHz
Operating Temperature	0°C – 50°C
Storage Temperature	-20°C – 60°C
Air Humidity	5% – 75%
Waterproof	No
Maximal Penetration Depth	about 80 meters

Table 1: Technial Specifications (Control Unit)

4 Scope of Delivery

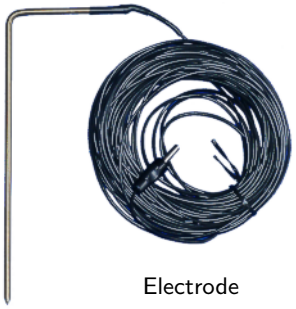
In the following section you can find all standard equipment. The scope of delivery can be different in some circumstances because of some optional accessories which should not be included in the basic equipment.

1	Control Unit
4	Electrodes (with about 20m cable)
1	Manual
1	Charger for Control Unit
1	Carrying Case
1	External Power Supply [optional]
1	Charger for External Power Supply [optional]
1	Cable for External Power Supply [optional]

Table 2: Scope of Delivery

Beware that pictures in this manual could be different to delivered parts.

Control Unit



Electrode

Charger for
Control Unit

Figure 1: Scope of Delivery

5 Assembly

In this section is explained how to assemble the device and how to prepare a measurement.

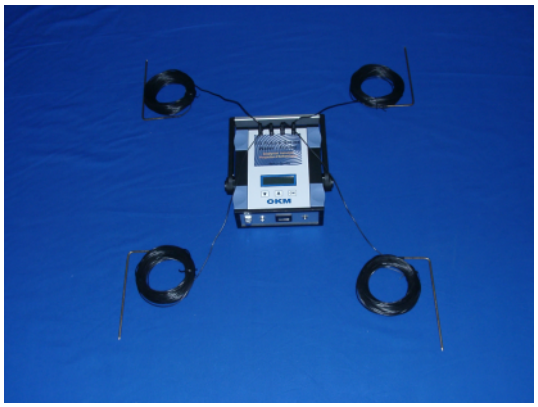


Figure 2: Connection of Electrodes

In figure 2 you can see how to connect the electrodes to the device in the right way. Do it without any unnecessary application of force! The detailed discription how to connect the electrodes you can find in section 7 on page 14.

Figure 3: Connection of External Power Supply (optional)

In figure 3 you can see how the external power supplyPower Supply has to be connected. Please take care that you use the 12V output of the external power supply for the correct cable connection. The external power supply is not part of the standard scope of delivery of your device and can be purchased apart optional.

6 Control Elements

In this section you will learn more about the fundamental use of all control elements for this measuring instrument. All connections, inputs and outputs are explained in detail.

6.1 Front View

Figure 4 shows the front side of the device.

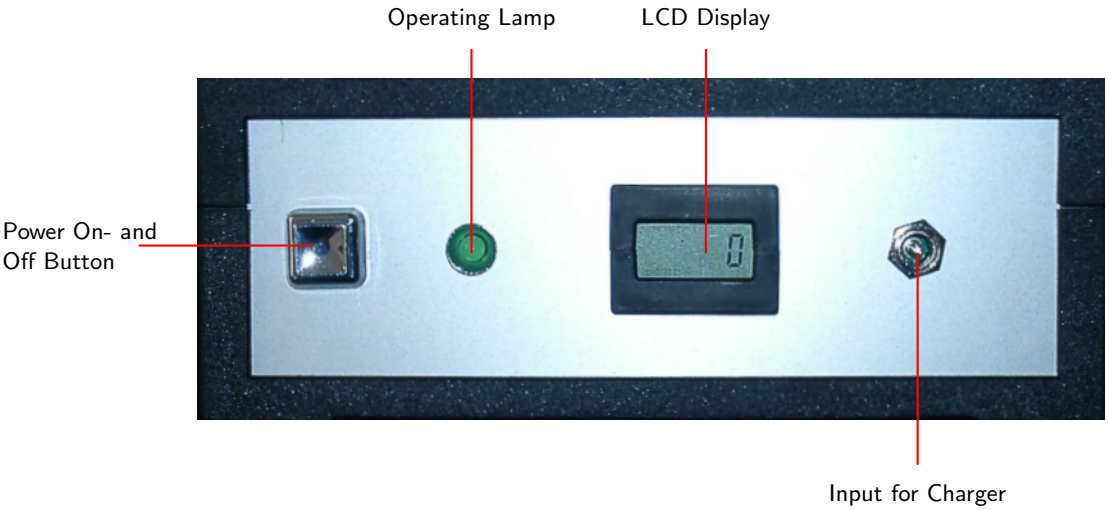


Figure 4: Front View

The Power On and Off Button is used to switch on and off the control unit. Before operating with your device you have to be sure that the device is charged.

The Operating Lamp shines, when the device is powered on and indicates the operating readiness of the control unit.

The LCD Display indicates how often the device was powered on. This display is only of interest for the repair and maintenance service.

The Connection of Charger is used to connect the delivered charger to the control unit if you want to load the internal battery of the device.

6.2 Back View

Figure 5 shows the back side of the control unit with all connections.

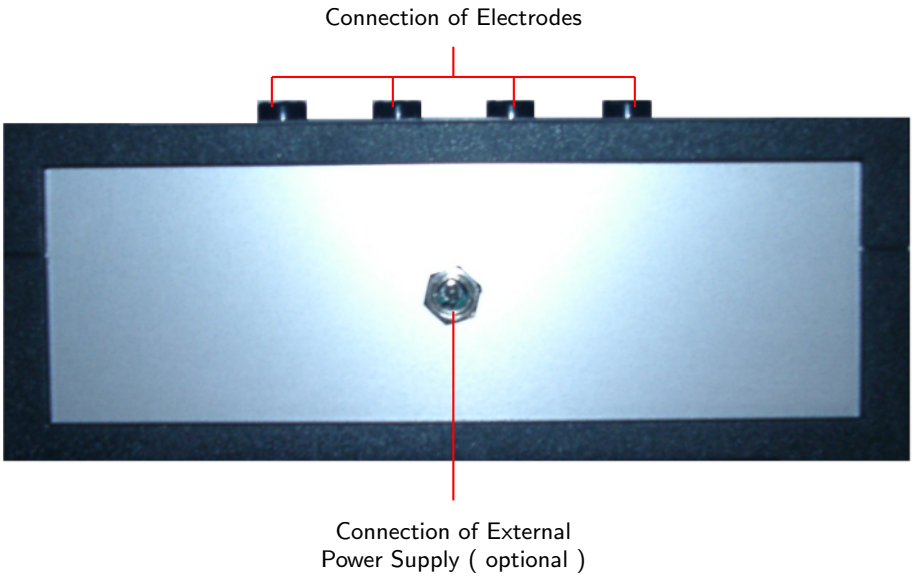


Figure 5: Back View

The Connection for Electrodes is used to connect the delivered electrodes.

The Connection of External Power Supply is used to plug in the external power supply to the device. It is not included in the scope of delivery and has to be purchased apart optional.

6.3 Touchpad for Menu Navigation

The top of the device is including a touchpad like in figure 6. The represented arrows have no particular use for the Waterfinder and are not necessary for operating the device.

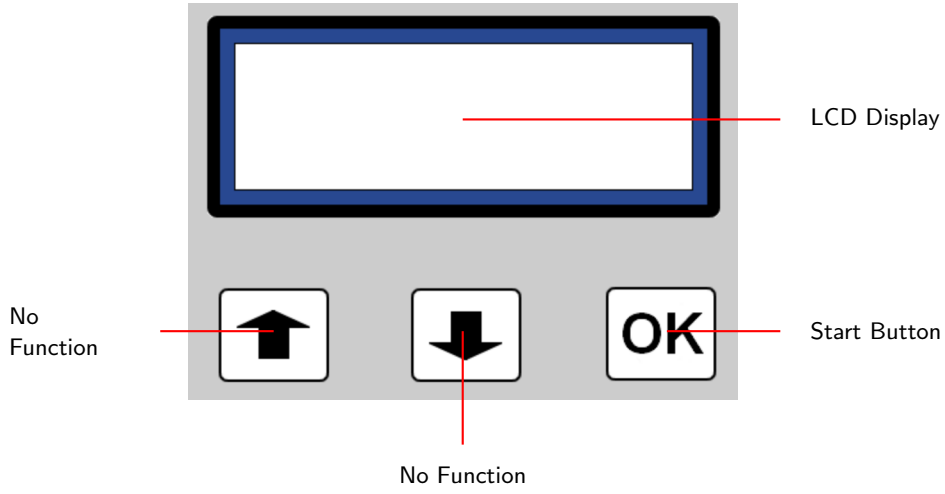


Figure 6: Touchpad for Menu Navigation

The LCD Display indicates the measured results.

With the Start Button the measurement procedure can be started.

7 Detection of Water Deposits

The *Waterfinder* offers you a geo-electrical measuring method to detect water. The device is not able to determine the exact depth of a located water deposit.

There are four connections for the electrodes on the control unit. You have to keep a certain manner to connect the electrodes in the right way. The correct connection is represented in figure 7.

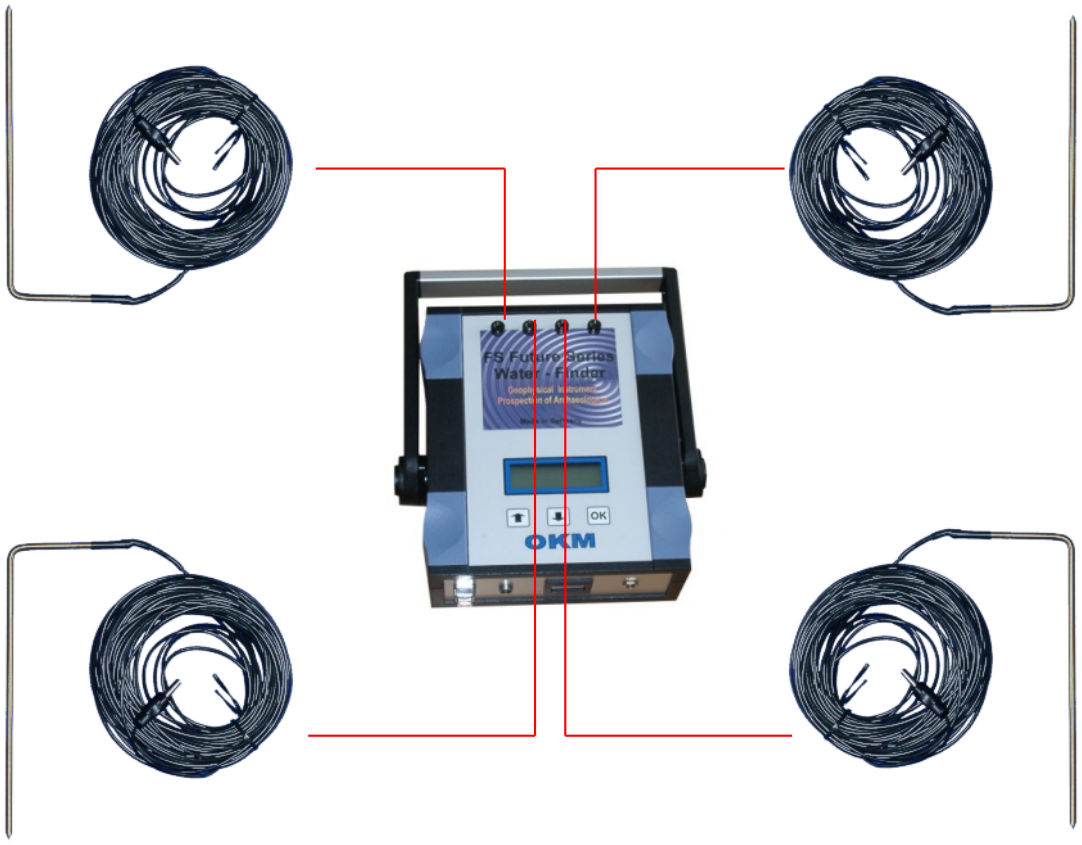


Figure 7: Connection of Electrodes

Try to define a square area with the four electrodes and connect the cables to the main unit. Therefore you have to plug in the electrode cable of the upper left electrode in the first connection of the device from left to right. The following electrode cable which is placed next to it counter clockwise has to be plugged into the next connection. Go on in the same direction until all electrodes are connected.

To perform a measurement plug in the electrodes like explained above and connect them in the correct way. Power on the device with the Power On- and Off Button. The message *Press OK scan active* appears on the LCD Display. You can start the measurement by pressing the Start Button. During the measurement procedure the message *Water-Finder scan active* appears on your LCD Display, after a short time the measured results are represented. If a water deposit has

been detected than the percentage of water relative to your destination area is represented. For example the message *Water = 20%* will be shown on the display. If no water has been detected the message *Water = NO* is shown. Beware that only the following possibilities can be displayed as measured results:

Water = NO
Water = 20%
Water = 40%
Water = 60%
Water = 80%

A particular representation of the single, fifth or tenth place is not possible.

If this is your first measurement it is adviced to define a wide area to find out in generally if there is a water deposit or not. To detect the exact location of water (if water exists in this area) split your measured field in four smaller parts and repeat the measurement in every subsection. This method you can repeat as often as you like until you found the exact location of the water.

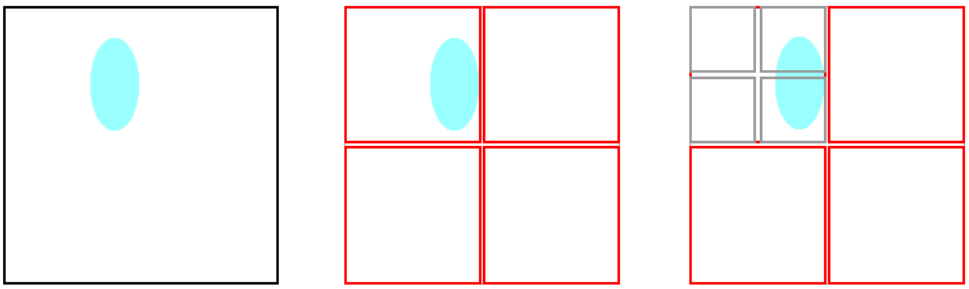


Figure 8: Rarefy a Measurement

In figure 8 the explained measuring method is represented once again. At first measure the wide area which is here represented in black color. On the display of the device the message *Water = 20%* appears. Then devide this area in four smaller subsections and repeat your measurement inside these red represented fields again. Only in the upper left field the result *Water = 40%* will be shown. All other fields will indicate the message *Water = No* on the display. Now you can split this red marked subsection again to specify the position and size of the detected cavity.

8 Loading the Device

Before you start a measurement please control if the Waterfinder is charged completely. The following section describes how to load the Waterfinder in a correct way. To load the internal battery of the device use only the delivered charger.

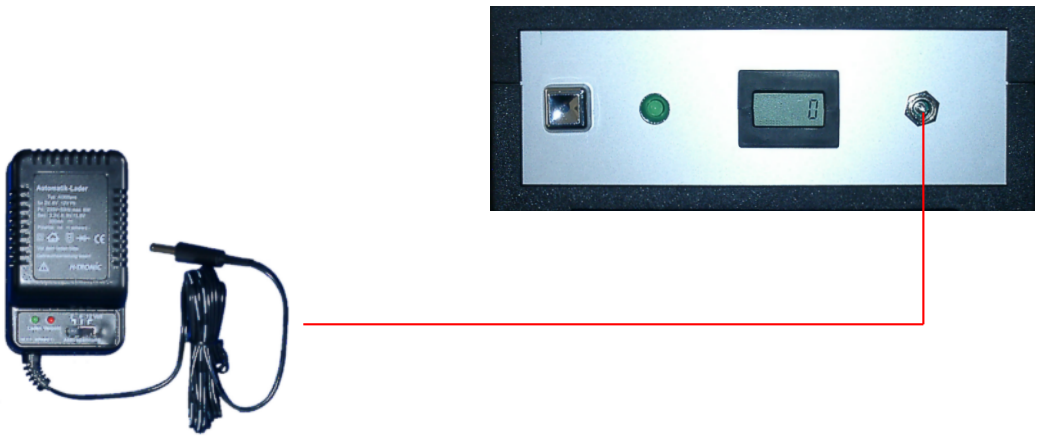


Figure 9: Connection of Charger

Figure 9 shows how to connect the delivered charger to the Waterfinder. Therefore you have to use the appropriate connection at the front side of the device. A control lamp on the charger lights up in green during the loading procedure and signal the current loading of the Waterfinder. Only if the lamp stops shining the loading procedure is finished. The loading time in case of complete discharge of the device is about 8 – 12 hours.

9 Danger of Explosion during Excavation

Unfortunately, the last two world wars also made the ground in many places of the world a potentially explosive scrap heap. A host of those lethal relics are still buried in the ground. Do not start digging and hacking for an object wildly when you receive a signal of a piece of metal from your device. Firstly, you might indeed cause irreparable damage to a truly rare find, and secondly, there is a chance that the object reacts in an insulted way and strikes back.

Note the colour of the ground close to the surface. A red or reddish color of the ground is an indicator of rust traces. As regards the finds themselves, you should definitely pay attention to their shape. Curved or round objects should be a sign of alarm, especially if buttons, rings or little pegs can be identified or felt. The same applies to recognizable ammunition or bullets and shells. Leave that stuff where it is, do not touch anything and, most importantly, do not take any of it home with you. The killing machines of war made use of diabolical inventions such as rocker fuses, acid fuses and ball fuses. Those components have been rusting away in the course of time, and the slightest movement may cause parts of them to break and be triggered. Even seemingly harmless objects such as cartridges or large ammunition are anything but that.

Explosives may have become crystalline over time, that is, sugar-like crystals have formed. Moving such an object may cause those crystals to produce friction, leading to an explosion. If you come across such relics, mark the place and do not fail to report the find to the police. Such objects always pose a danger to the life of hikers, walkers, farmers or children.

10 Maintenance and Services

In this section you will learn how to maintain your measuring instrument with all included accessories to keep it in good condition a long time and to get good measuring results.

The following list indicates what you absolutely should avoid:

- penetrating water
- strong dirt and dust deposits
- hard impacts
- strong magnetic fields
- high and long lasting heat effect

If you want to clean your device please use a dry rag of soft material. To avoid any damage you should transport the device and accessories always in the appropriate carrying cases.

Beware that all batteries and accumulators are always charged fully while operating with your system. You should only load the batteries when they are completely discharged no matter if you are working with the external power supply or with the internal accumulators. In this way a long durability of the used batteries is guaranteed.

To load the external and internal batteries you have to use only chargers which are part of our scope of delivery.

Index

Air Humidity, 7

Connection of External Power Supply, 12

Dimensions, 7

electrode cable, 14
electrodes, 10, 14

LCD Display, 13, 14

Maximal Penetration Depth, 7
measured results, 14

Operating Temperature, 7

Power On- and Off Button, 14
Power Supply, 10
Processor, 7

Start Button, 13, 14
Storage Temperature, 7

Voltage, 7

Weight, 7